Diamond Antenna – These are Copies…

Introduction

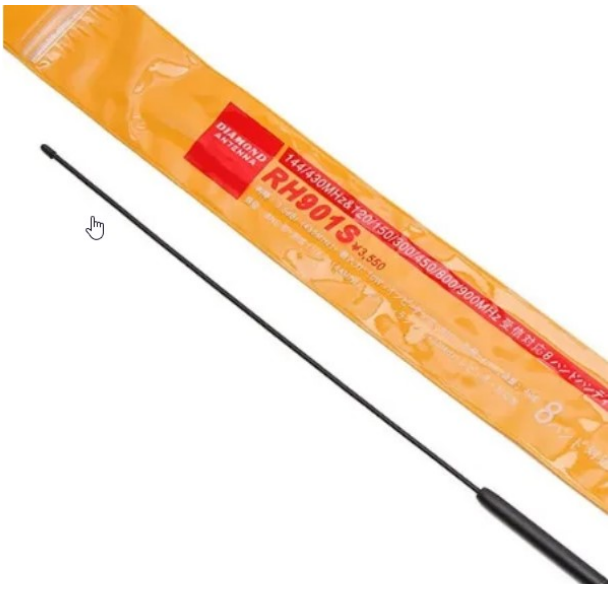
Real Situation: I wanted to buy a VHF/UHF antenna for my portable Anytone AT-D878UVII Plus, a wonderful analog and DMR machine.

The reason is simple: It comes with an antenna about ten centimeters long, and one might reasonably assume that given its size, this antenna offers limited performance, especially in the 2-meter band.

One might be well advised to choose a longer model around 60 centimeters, even if it is bulkier, to benefit from better performance.

I therefore chose a Diamond RH901S antenna with a female SMA connector that I discovered at a stand.

I won't provide more information.



The packaging is pleasant and appropriate; the antenna fits my radio, I turn it on, and I receive relays and can transmit, so I decide to buy it.

After all, the Japanese brand Diamond is a leader in the antenna market; their products are excellent in terms of both performance and mechanical behavior. One can NEVER go wrong by buying Diamond equipment.

The Doubt…

Once home, I want to learn more about the characteristics of this antenna.

Searching the Internet, I see that the referenced product is mainly sold on Aliexpress and other Chinese sites but nowhere else.

I go to the Diamond website https://www.diamond-ant.co.jp, and surprisingly, my antenna's reference is not listed there.

I finally understand that I didn't really buy a Diamond antenna but an imaginary product sold in packaging resembling a Diamond product...

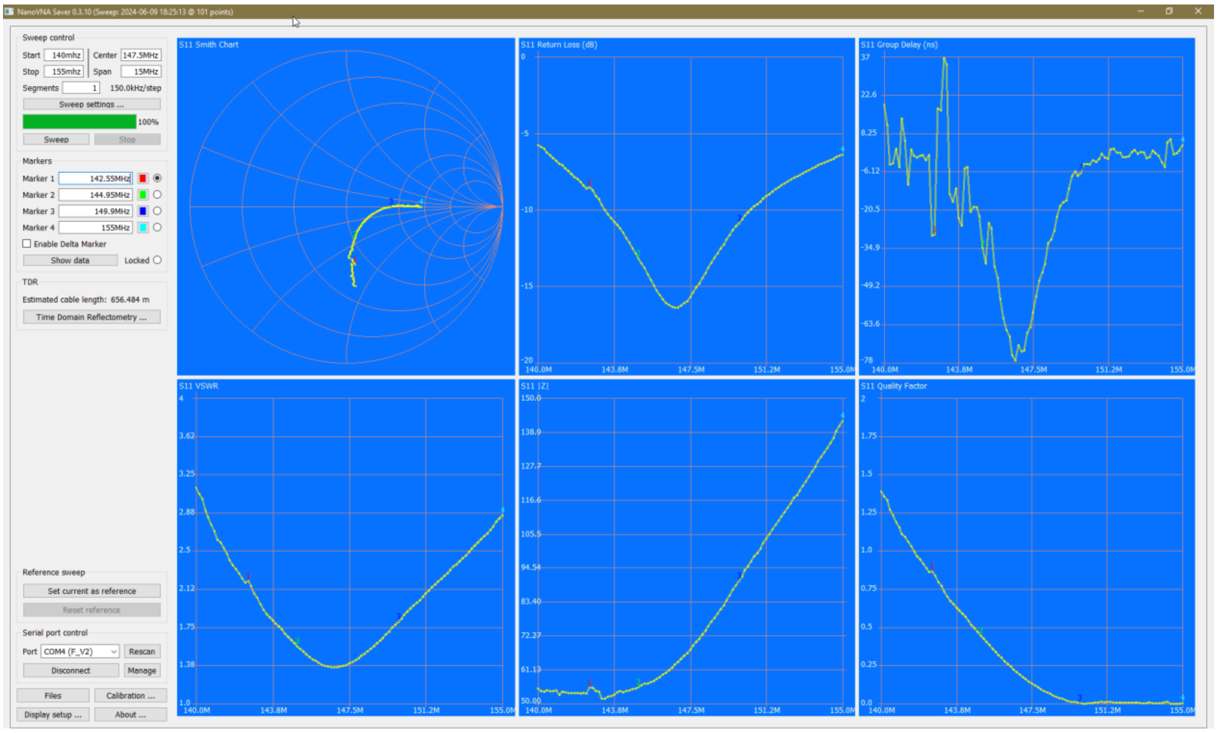
A simple internet search reveals with horror that these antennas are among the most copied in the world!

And what about my antenna?

Besides realizing I bought a copied (and imaginary) product, at least I wonder HOW this antenna actually performs, so I decide to test it with a NanoVNA analyzer.

I hold the analyzer close to my head with the antenna connected, as if I were using my Anytone portable radio.

Anytone Original Antenna – SWR on 144 MHz



NanoVNA Saver 0.3.10 (Sweep: 2024-06-09 18:25:13 @ 101 points)

Sweep control
Start 140mhz
Stop 155mhz
Center 147.5MHz
Span 15MHz
Segments 1
150.0kHz/step
100%

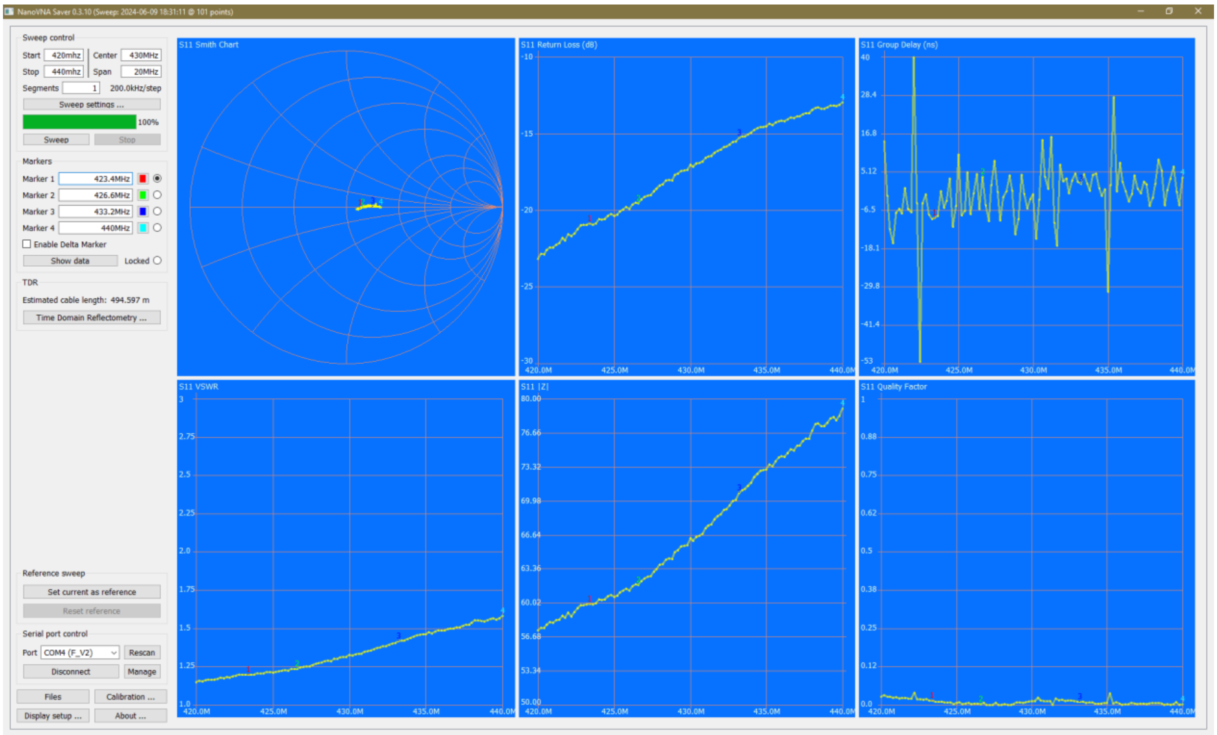
Markers
Marker 1 142.55MHz ●
Marker 2 144.95MHz ○
Marker 3 149.9MHz ○
Marker 4 155MHz ○
☐ Enable Delta Marker
Locked ○

TDR
Estimated cable length: 656.484 m

Serial port control
Port COM4 (F_V2)

The SWR is very good, with a flawless operational curve.

Anytone Original Antenna – SWR on 430 MHz


NanoVNA Saver 0.3.10 (Sweep: 2024-06-09 18:31:11 @ 101 points)

Sweep control

Start 420mhz | Center 430MHz

Stop 440mhz | Span 20MHz

Segments 1 200.0kHz/step

100%

Markers

Marker 1 423.4MHz ●

Marker 2 426.6MHz ○

Marker 3 433.2MHz ○

Marker 4 440MHz ○

☐ Enable Delta Marker

Locked ○

TDR

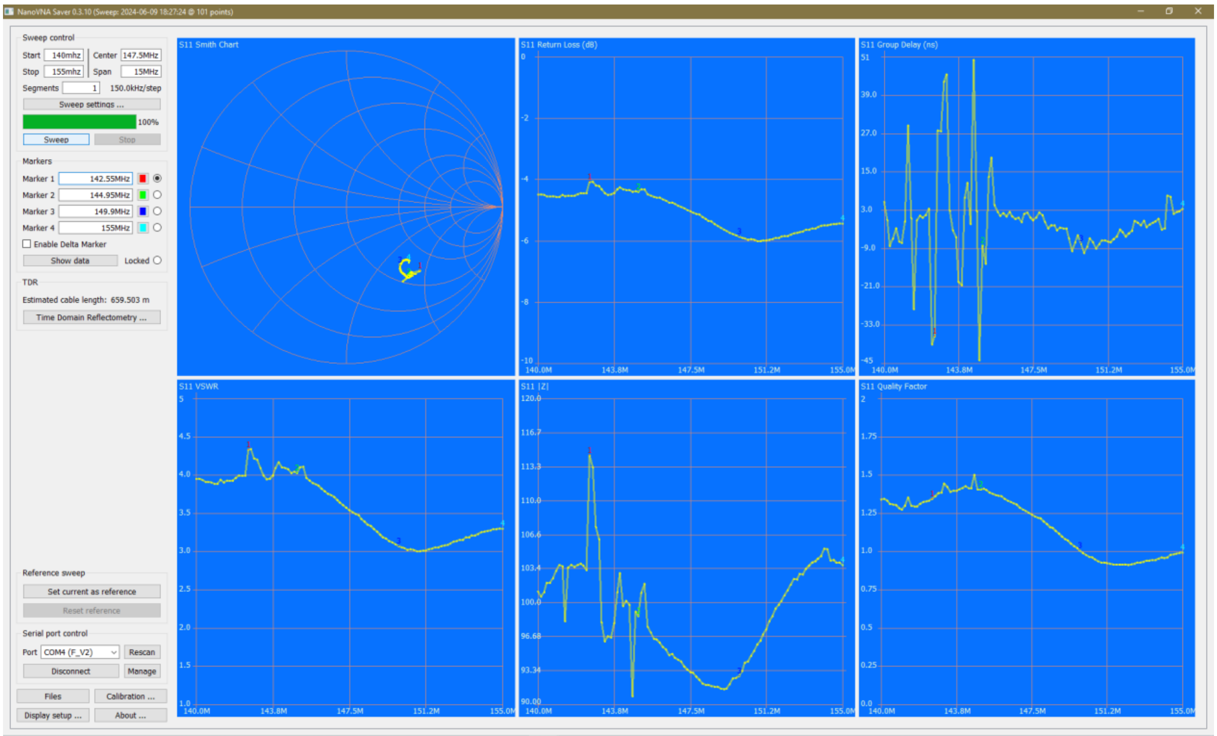
Estimated cable length: 494.597 m

Port COM4 (F_V2)

The SWR is not too bad either, between 1.3 and 1.6 across the entire band width.

One can't really ask for more from an antenna included with a radio costing around 240 francs; it's even extraordinary.

Pseudo “Diamond” Antenna – SWR on 144 MHz


NanoVNA Saver 0.3.10 (Sweep: 2024-06-09 18:27:24 @ 101 points)

Sweep control

Start 140mhz | Center 147.5MHz

Stop 155mhz | Span 15MHz

Segments 1 150.0kHz/step

100%

Markers

Marker 1 142.55MHz ●

Marker 2 144.95MHz ○

Marker 3 149.9MHz ○

Marker 4 155MHz ○

☐ Enable Delta Marker

Locked ○

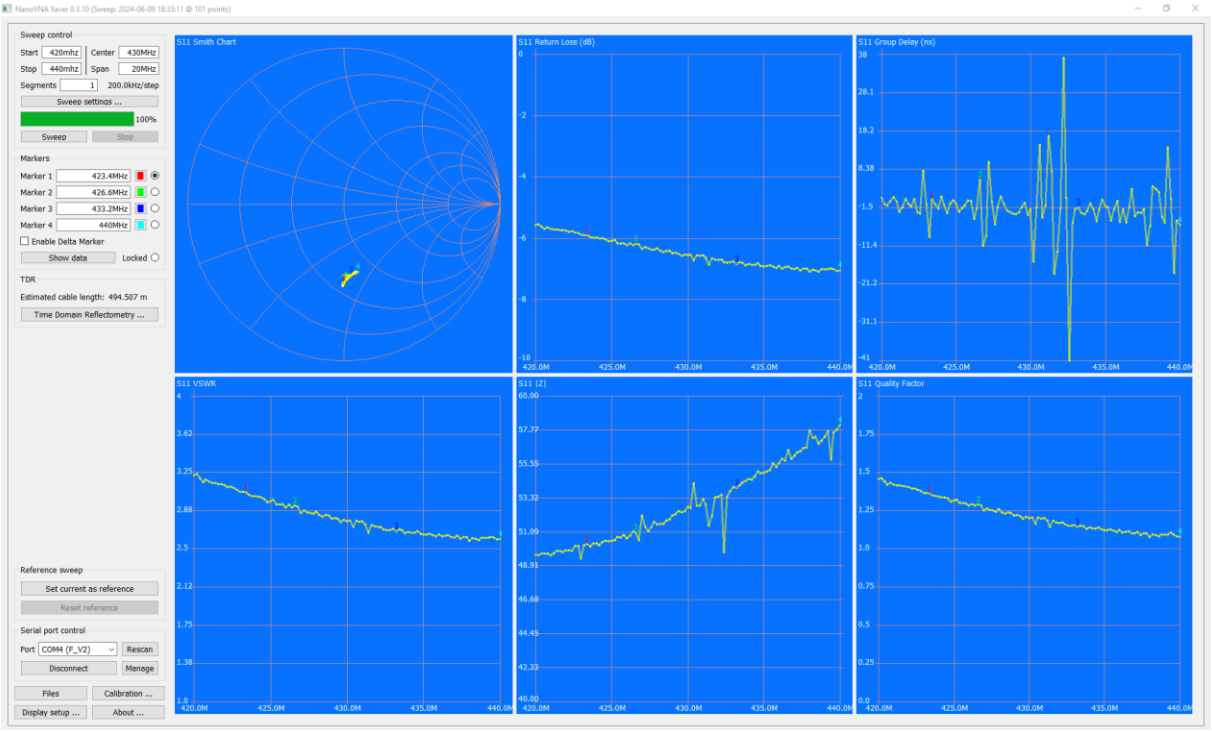
TDR

Estimated cable length: 659.503 m

Port COM4 (F_V2)

Let's be honest: The curve looks like nothing; we don't really know how this antenna resonates or what the "engineers" were trying to achieve, but the SWR is equal to or greater than 4!

Pseudo “Diamond” Antenna – SWR on 430 MHz



NanoVNA Saver 0.3.10 (Sweep: 2024-06-09 18:33:11 @ 101 points)

Sweep control
Start 420mhz | Center 430MHz
Stop 440mhz | Span 20MHz
Segments 1 200.0kHz/step
100%

Markers
Marker 1 423.4MHz ●
Marker 2 426.6MHz ○
Marker 3 433.2MHz ○
Marker 4 440MHz ○
☐ Enable Delta Marker
Locked ○

TDR
Estimated cable length: 494.507 m

Serial port control
Port COM4 (F_V2)

Same observation: There is no curve indicating that this antenna was designed to resonate in the band we are interested in… And still with an SWR approaching 3…

So?

So, they didn't even try to make an antenna that should function correctly, and even worse, it could damage your radio, especially if you use it a lot or perform data transmissions, for example…

This is obviously unacceptable, and you might even break your equipment.

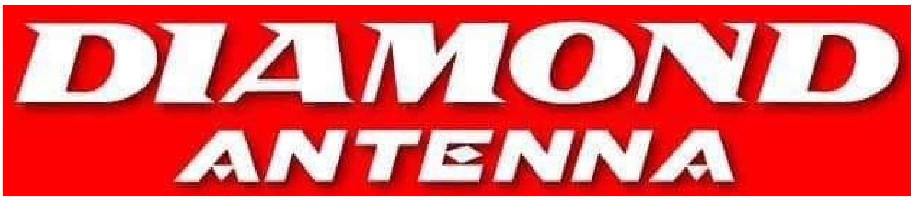
How to Buy a REAL Diamond Antenna?

It's simple: only go through an authorized and well-known dealer like Sat-Online or WIMO.

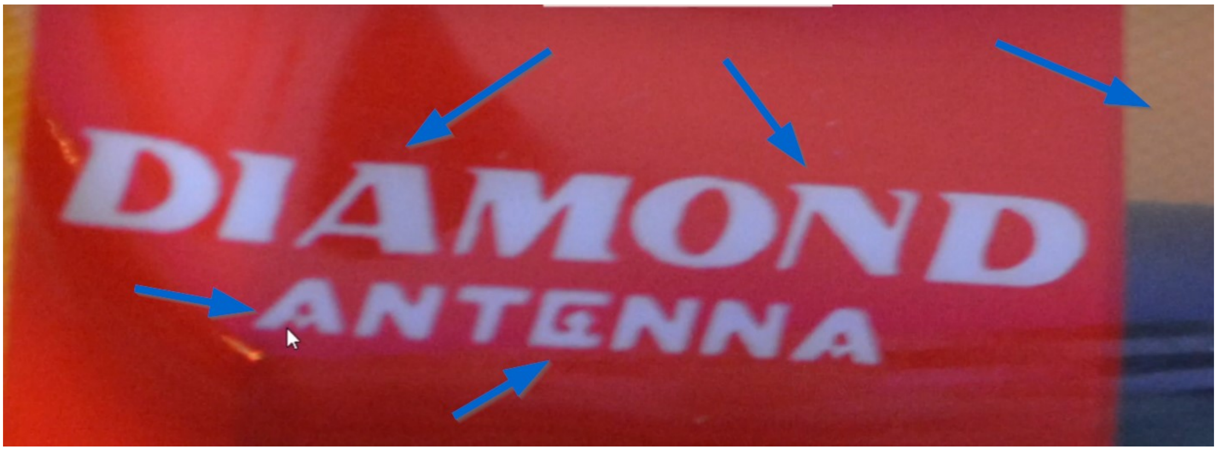
In fact, ALL the antennas you buy elsewhere (Amazon, Aliexpress, eBay, Temu, Rakuten, Wish, or anything else) will necessarily be copies.

You might try to find some additional elements without guarantees…

The Original Diamond Logo…



What does the Diamond logo look like?

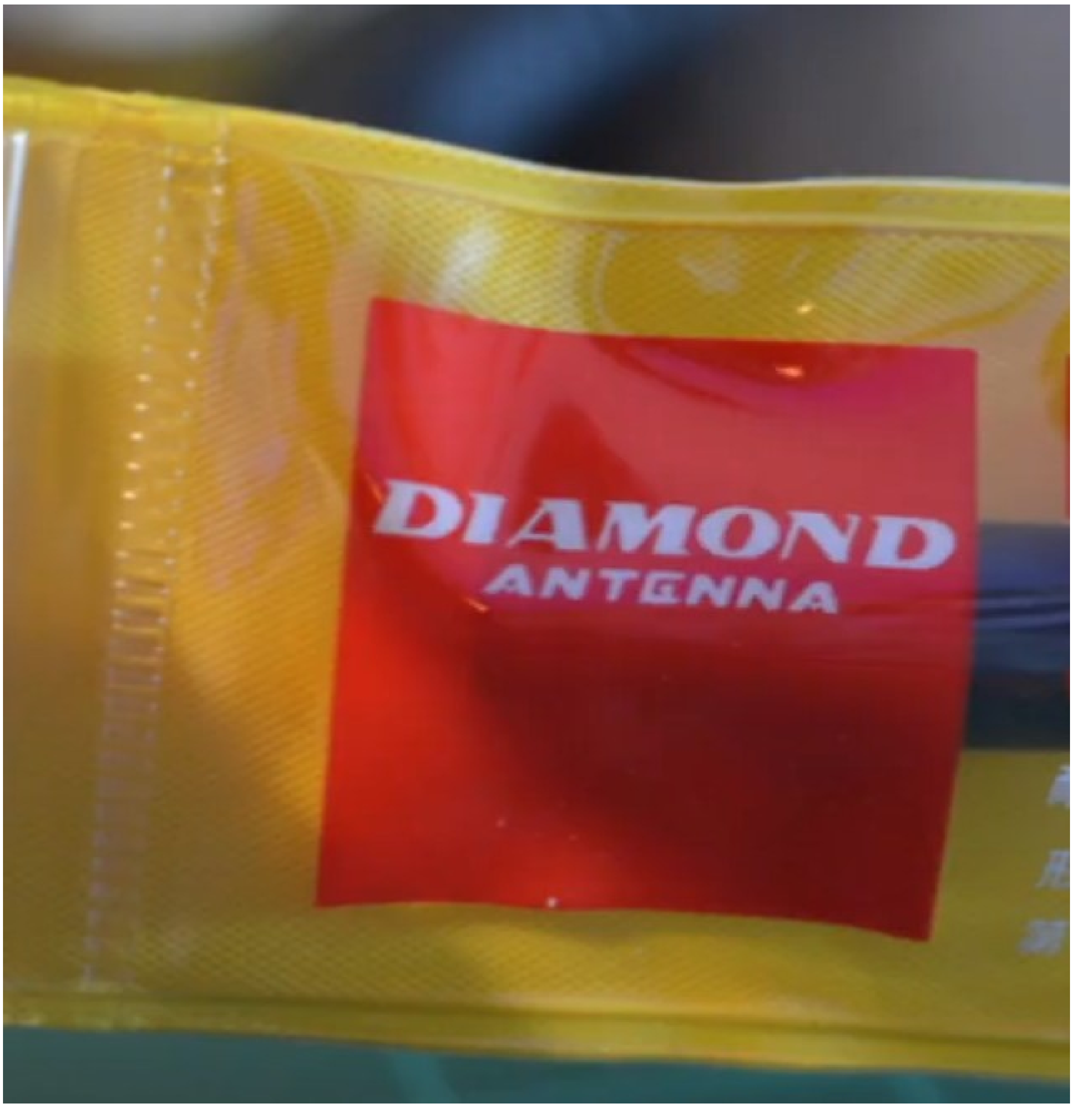


The font is always the same.

The letter "A" in "Antenna" contains a small triangle in the middle pointing downwards, and the letter "E" contains a small diamond in the center.

This is important and must be precisely present on the packaging in this form. The "E" can be slightly different.

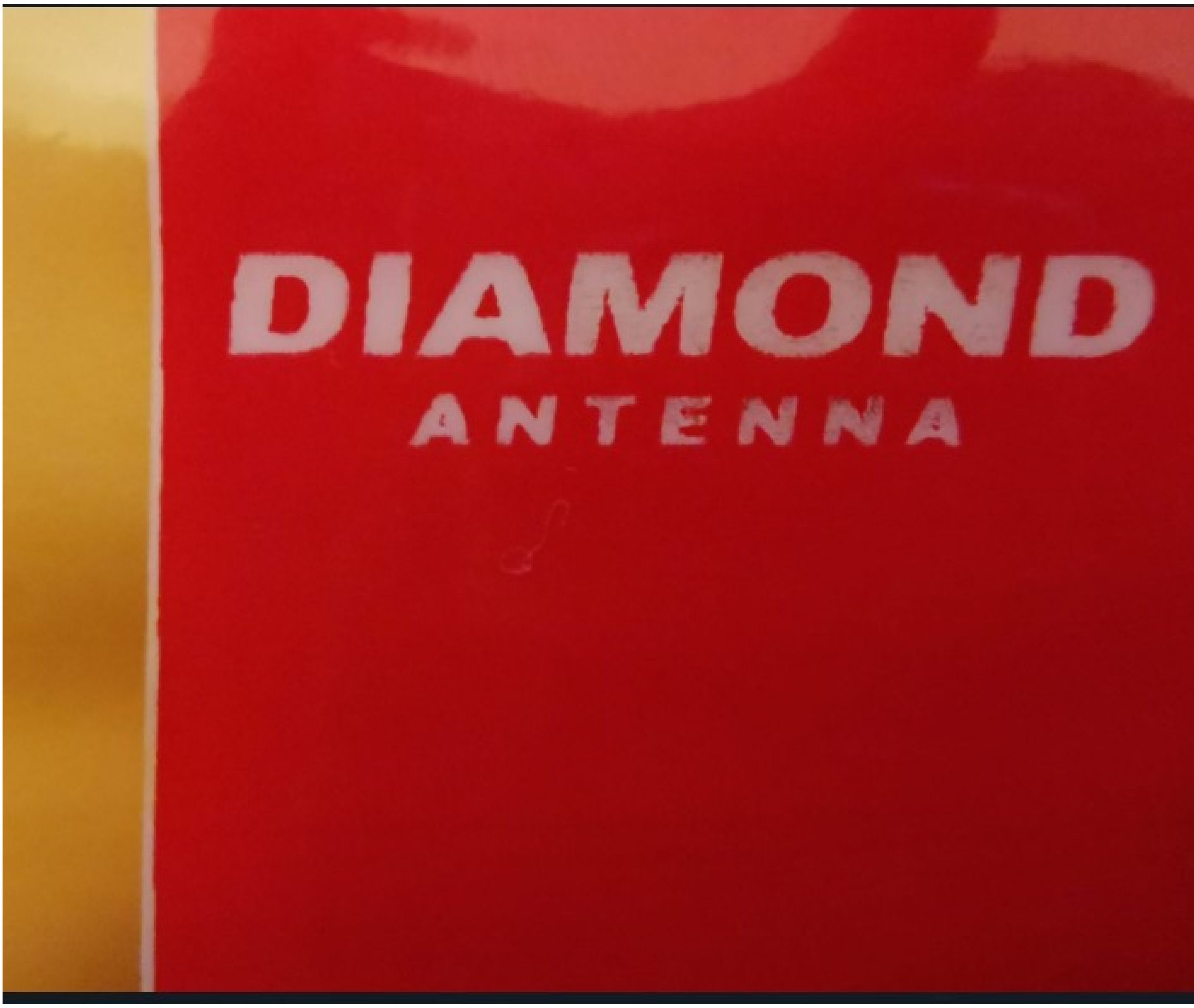
On original packaging, it will look like this:



You can see the fonts of A and N, and on the second line, the A and E with their respective arrangement.

Moreover, the yellow color is not solid; it has a pattern:

The Copied Diamond Logo…



On the packaging, if your logo is different, then your antenna is definitely a (bad) copy.

For example, here's what I have on my antenna's packaging:

You can clearly see that this won't be possible… And in addition, the yellow color is perfectly uniform without the characteristic patterns.

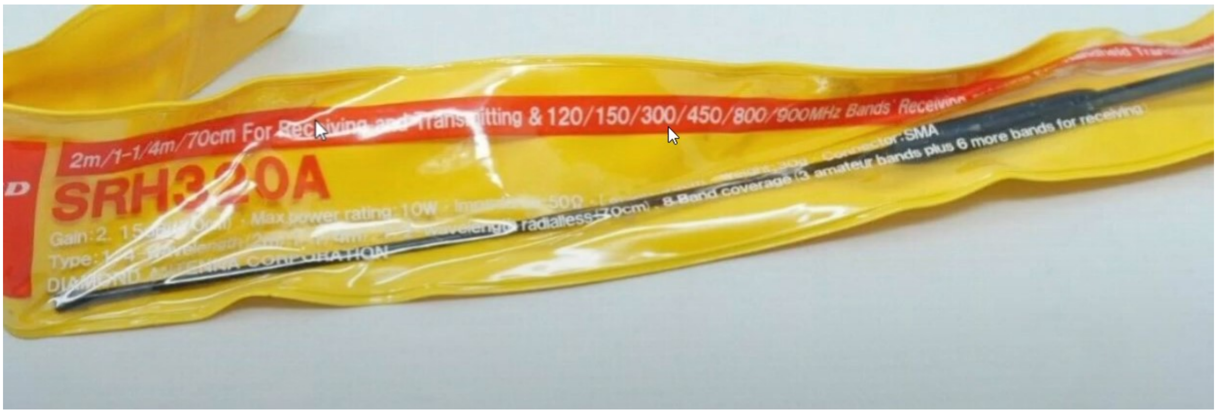
And the Nomenclature…

Diamond uses the prefix RH for BNC connectors and SRH for SMA.

If the packaging has a "SMA Connector" sticker, then it is definitely fake.

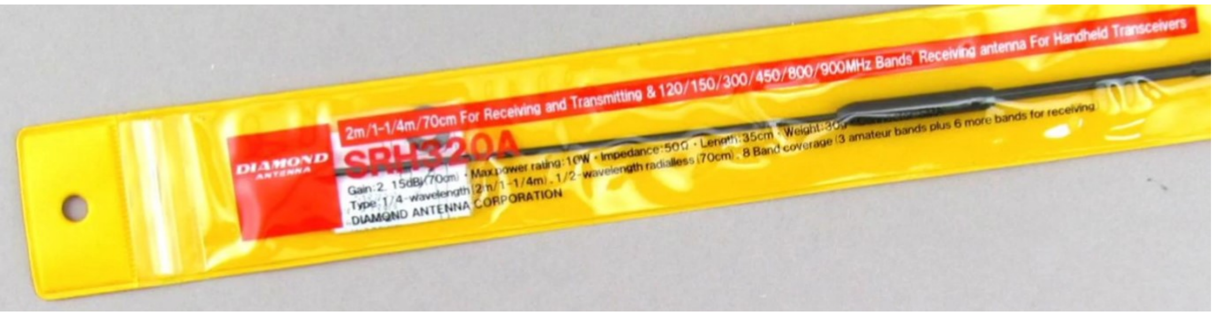
Some counterfeits I've seen have letters that don't form words or spelling mistakes, but generally, they are fairly well made.

The Packaging


2m/1-1/4m/70cm For Receiving and Transmitting & 120/150/300/450/800/900MHz Bands Receiving
SRH320A
Connector:SMA
8 Band coverage (3 amateur bands plus 6 more bands for receiving
DIAMOND ANTENNA CORPORATION

Diamond's packaging folds little; if your packaging folds in all directions, it's a copy.

On original packaging, the text is written in black, especially "DIAMOND ANTENNA CORPORATION."


DIAMOND ANTENNA
2m/1-1/4m/70cm For Receiving and Transmitting & 120/150/300/450/800/900MHz Bands Receiving antenna For Handheld Transceivers
SRH320A
Gain: 2. 15dBi (70cm) · Max power rating: 10W · Impedance: 50Ω · Length: 35cm · Weight: 30g
Type: 1/4 -wavelength (2m/1-1/4m) . 1/2 -wavelength radialless (70cm) · 8 Band coverage (3 amateur bands plus 6 more bands for receiving
DIAMOND ANTENNA CORPORATION

Additionally, a document comes with the antenna, showing a small white paper nonexistent on the copy above...

Conclusion

In the end, we see that it is very difficult to distinguish an authentic Diamond antenna from another.

The first measure is to buy only from an authorized dealer that we have often mentioned and certainly not from Amazon and others, nor from hardware dealers who themselves source from the sites mentioned.

Then, an antenna can be tested: So do it. If it does not meet your expectations, you must contact the dealer and return it. If things get worse, you will need to contact Diamond and possibly even file a complaint. Unfortunately, this is how our world works.

This is unfortunately true for the Diamond brand but also for all other antenna brands.

Same for the connectors: "Buy Chinese, buy three times."